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From the Emotion/Cognition Dichotomy to an Organic Whole : Philosophical Perspectives via James, Whitehead, Peirce, Dewey, and Bergson

Yu KANAZAWA*

二分法から有機的統一体へ
――ジェームズ・ホワイトヘッド・パース・デューイ・ベルクソンの哲学的観点から考察した情動と認知の関係――

金澤　　佑

Abstract :

One of the important topics which has long been argued and discussed in philosophy is the nature of emotion, cognition, and their relationship. This paper approaches this issue from philosophical perspectives. First, the early history and the traditional Cartesian separated view is introduced. Then, the more organic views are explained to overcome the traditional dichotomy, deriving specifically from the early pragmatism (by Charles Sanders Peirce, William James, & John Dewey), the biological philosophy (by Henri Bergson) and the process philosophy (by Alfred North Whitehead). Ample examples and quotes are used to explain the active, dynamic, organic, and élan-woven metaphysics, which is expected to pave the way for better understanding and theories of human nature, development, and education.

要旨：情動と認知ならびにそれらの関係については、哲学の分野で長く議論されてきた。本論ではこの問題についての哲学的議論をテーマとする。まず、初期の歴史やデカルトに帰せられる伝統的な分離した理解が紹介される。それに続き、伝統的な二分法を克服する有機的な理論が紹介される。特に初期プラグマティズム（パース・ジェームズ・デューイ）、生の哲学（ベルクソン）、プロセス哲学（ホワイトヘッド）からの豊富な例や引用を通して、能動的・動的・有機的でエランの織り込まれた形而上学が説明される。これらのダイナミックな形而上学が、人間の本性・発達・教育のより良い理解・理論・アプローチへの布石となることが期待される。

Key words : Peirce, James, Dewey, Bergson, Whitehead, Emotion, Cognition

1. Introduction

Emotion (i.e., Affect ; Affection ; Feeling ; Passion ; Sensibility) has long been one of the major subjects of inquiry of philosophical discussions. Although various emotions and their charac-

*Assistant Professor, School of International Studies, Kwansei Gakuin University

teristics have been discussed by such authoritative philosophers as Plato and Aristotle in the Ancient Greece as early as in the 4th century B.C., which was succeeded by the taxonomical analyses by stoic philosophers in the Hellenistic period and by the ecclesiastical theological theorization by scholastic philosophers in the Medieval period (Gardiner, Metcalf, & Beebe-Center, 1937 ; Hirokawa, 2000), the exhaustive studies on emotion in the modern standard of academics allegedly had to wait until the post-Medieval era.

2. Traditional separated view

Baruch Spinoza (1634-1677), "the noblest and most lovable of the great philosophers", (Russell, 1945, p.569) is one of the pioneering philosophers who started investigation of emotion in a manner that is in accordance with the present philosophical and scientific perspectives (Deleuze, 1968/1992 ; Damasio, 2003). Spinoza renounced the dichotomous view of Emotion contradicting Cognition (i.e., Reason, Intellect, Thought, Thinking, Understanding)[1)] and defined emotion as "the modifications of the body, whereby the active power of the said body is increased or diminished, aided or constrained, and also the ideas of such modifications" (1677, Book III, Definition 3). His insightful view of emotion, which integrated cognitive, affective and physiological (i.e., body-related) process,[2)] was not appreciated in his time when the dominant understanding of human nature separated mind and body as entities which are essentially different from each other (e.g., Descartes, 1649/1989) and reason and emotion were regarded as natural antagonists (cf. De Sousa, 1987, p.xv). In the Cartesian ontology, mental cognition is a special faculty of the mind and it shares nothing common with bodily perception, sensation and emotion (cf. Grossmann, 1984, p.18).[3)] The traditional view is depicted in Figure 1.

1） Cognition is a pluralistic term which lacks a discipline-fixing definition in spite of its highly frequent use (Allen, in press). In the terminology of modern science, cognition can be defined as the process of detecting sensory differences and fluctuations followed by the neural processing of them whereas emotion is the holistic body-mind state entangled with any physical-physiological experiences. (translated and paraphrased by the author based on Ciompi, 2005). Cognition denotes such mental faculties as learning, acquisition, memory, inference, and synthesis (Peirce, 1887-1888/1931 a, para. 1.376), whereas emotion includes feeling, sensation and mood no matter they are subconscious (e.g., gut feelings) or intense (e.g., euphoria) ; deviated from the homeostasis (e.g., feeling disgust) or not (e.g., feeling familiar). The term cognition has often been used synonymously to *Reason,* which has long been regarded as the intellectual faculty which gives humans superior knowledge in the Western tradition. The traditional transcendental intellectualist accounts of Reason are now radically questioned and are being substituted by socio-interactionist evolutionary accounts (cf. Mercier & Sperber, 2017). Emerging understanding of cognition for the future academia would have to be "embodied, embedded, extended, and enacted" (Mengel, 2017, p.104).

2） Spinoza was not the first philosopher to articulate the body-mind interminglednes. One of the predecessors is Lucretius, who realized the nature of mind and body and eloquently expressed it in the form of didactic poem. As early as in the 1st century BC, he stated that "the mind, which we often call the understanding, in which is placed the reasoning and guiding power of life, is a part of a man no whit the less than hand and food and eyes are created parts of the whole living being" (1st century BC/1910, p.109). His theoretical position, however, was rather heretical in his contemporary Greco-Roman philosophy.

3） The following remark by a renowned philosopher Thomas Brown discussed emotion, perception, and intelligence as follows : "Our emotions, then, even in the cases in which they seem most directly to co-exist with perception, are still easily distinguishable from it ; and, in like manner, when they arise from the intellectual states of memory, imagination, comparison, they are equally distinguishable from what we remember or imagine, or compare" (Brown, 1822, p.253). Although pioneering, his description of these mental phenomena is separated, at best, modular.

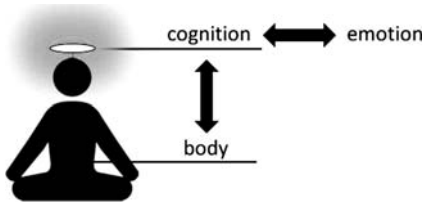

Figure 1 The traditional Cartesian separated view of cognition-emotion and cognition-body is depicted, in which the double arrow symbols imply separation and contradiction.[4)]

Unlike his time, it is now transdisciplinarily accepted that cognition, emotion and body are essentially influential to one another and intrinsically intertwined with one another, accusing Descartes of his error (Damasio, 1994).[5)] The epistemological restoration of the intimate relationship between thinking, feeling and body has begun in the 18th century at the latest (cf. Robinson, 2017). Already in 1780s has Immanuel Kant, one of the celebrated modern philosophers, argued in his renowned First Critique that neither *concepts* (i.e., what is spontaneously thought in the mind and is intellectually understandable) nor *intuition* (i.e., what is receptively given to the mind and can only be felt sensibly and emotionally) is complete in itself and "only from their unification can cognition arise" (1781/1998, p.194).[6)] Further historic examples in the *crème de la crème* classical literatures are in-

4) The traditional view is dramatically expressed by the Western mystics. Saint John of the Cross (1542-1591) notes that the key to a rational life is "the mortification of the four great natural passions, joy, hope, fear, and grief" (James, 1901-1902/1917, p.305). Hildegard von Bingen (1098-1179) notes that the human intellect is "weighed down by the mortal body" (Bingen, 1141-1151/1990, Book 1, Vision 6, p.140) and that cannot understand the celestial archangelic knowledge and the true beauty of Reason.

5) Dehaene (2014) notes that the recent trend of bashing René Descartes' dualism in neuroscience overlooks Descartes' enormous scientific contributions and the technical limitation of his age which logically elicits his theories (pp.3-6). Whitehead also acknowledges the deep connotation hidden behind Cartesian cogito, which in fact goes beyond the dualism (Whitehead, 1933/1967, pp.210-211).

6) Kantian argument in his First Critique, however, is not a sufficient view of emotion-cognition integration but rather a view compatible with Aristotelian *hylomorphism,* in which the intellectual form/*eidos* and the sensible matter/*hyle* are interpreted as qualitatively distinct ; the former being active, invigorating, and cosmic whereas the latter being passive, inert, and chaotic unless it is accompanied by the active organizing power of the *eidos.* In other words, the hylomorphic dichotomy applied to human mind supposes cognition as the active, organizing, higher agent whereas emotions as the passive (hence the word "passion" as a synonym of "emotion"), disordered, lower agents and not *vice versa.* This view of supreme cognition is what is also known with the word *logos.* One of the stoic philosophers who clearly explained this view is Marcus Aurelius Antoninus (121-180), the last of the Good Emperors in the ancient Rome. In his teleological explanation about the human beings, he recognized the importance to resist body's urges because "things driven by logos－by thought－have the capacity for detachment－to resist impulses and sensations, both of which are merely corporeal. Thought seeks to be their master, not their subject. And so it should : they were created for its use" (161-180/2002, Book VII, Article 55). Although such a view to exalt cognition/reason to the supreme celestial ruling power (*hegemonicon*) has had an enormous ethical, epistemological, and phenomenological value *sui generis* by providing a mental heuristic and an outlook for a moral life, it is no longer a sufficient ontological model and is not compatible with current scientific views (e.g., of ecological psychology and chaos theory), into which such concepts as unconscious inference, self-organization, negentropy, affordance, autopoiesis, microdevelopment, and motivated cognition are incorporated (cf. Boring, 1929 ; Schrödinger, 1944/1948 ; Gibson, 1977 ; Lombardo, 1987 ; Maturana & Varela, 1980 ; Immordino-Yang, 2010 ; Barclay, Bashshur, & Fortin, 2017). In cognitive psychological terms (cf. Eysenck, 2001), hylomorphism can be paraphrased as a *top-down* model, in which higher cognition governs lower emotions unidirectionally. It is true that the unleashed *bottom-up* counterpart, in which lower emotions affect higher cognition, can be problematic both ontologically and ethically, as the following famous statement appears to be : "Reason is, and ought only to be the slave of the passions" (Hume, 1739/1896). Since "it is now widely accepted that most cognition involves a mixture of bottom-up and top-down processing" (Eysenck, 2001, p.2), bi-directional integrated views incorporating dynamic interaction of bottom-up and top-down processes are needed. As Shelton and Scullin (2017) argue, both "top-down and bottom-up processes are interconnected and dynamically interact" (p.352) to support memory and thus dynamic multiprocess framework is needed for further elaboration and better understanding of cognition and emotion. ↗

troduced and their further theoretical elaboration by early pragmatists and biological philosophers are discussed in the following paragraphs.[7)]

3. Integrated views : James' pragmatic insights and Whitehead's organic microcosmology

The prominent pragmatist William James, who is also known as the founding father of psychology, states that "the bodily changes follow directly the perception of the exciting fact, and that our feeling of the same changes as they occur is the emotion" (1884, 9-190). Phenomenologically,[8)] he likewise notes that the effective real world for each one of us "is the compound world, the physical facts and emotional values in indistinguishable combination" (James, 1901-1902/1917, p.148). Quoting Blaise Pascal,[9)] James notes that "the heart has its reasons which the mind does not understand" (James, 1896, p.341) and stresses that not only pure insights and logic but also passional tendencies and volitions which come from our non-intellectual nature do influence our convictions (ibid., p.334). After all, "conceptual processes can class facts, define them, interpret them ; but they do not produce them, nor can they reproduce their individuality. There is always a *plus,* a *thisness,* which feeling alone can answer for" (James, 1901-1902/1917, p.455).[10)]

↘ Kant himself overcomes the hylomorphism in his Third Critique (1790) by re-conceptualizing imagination (e.g., a function of understanding which is capable of active synthesis of representations which cater for higher integrative apperception ; Kant, 1781/1998, p.211 ; p.236). Imagination is no longer interpreted as an element of concepts but as the power of intuition (Kant, 1790/1987, p.30). In other words, emotion reclaims its active self-organizing function it deserves.

7）Although the review focuses on Western philosophy, it does not mean emotion was disregarded in the Eastern philosophy. For instance, more than two millennia ago, Xunzi（荀子）, one of the renowned Chinese Confucian philosophers, provides a view which corresponds with the contemporary view that cognitive process is based on emotional ingredients (cf. Xunzi, 3rd century BC/1966, Chapter 22, On the Rectification of Names ; cf. Kanazawa, 2016).

8）The term "phenomenological" is used in this paper to express the first-person pure experience which is neither intellectualized nor classified by any analytic cognition or higher abstraction. In phenomenological perspective, "the structure of the perceived world is buried under the sedimentations of later knowledge" (Merleau-Ponty, 1969, p.370) and thus it is needed to dig down the perceived world to see the sensory qualities, each surrounded by a distinct affective atmosphere (ibid.). In other words, "taken raw, it is all undistinguished. Intellectualized, it is all distinction without oneness" (James, 1905, p.31). As a prominent Japanese scientific philosopher Shozo Omori explains, "no matter whether it is an illusion, a reality, an imagination, or a fantasy, anything that is seen, heard, imagined, occurred, or thought" (1981, p.215) is equal and each one of them deserve mindful attention devoid of prejudice. Such a micro-state of primordial cognition is known by quite a few names : a phenomenon (Husserl, 1929/1960), a *phaneron* (especially the firstness ; Peirce, 1904-1905/1931 c), a *pure experience* (James, 1905 ; Nishida, 1911), a *primary experience* (Dewey, 1929), or a *perceptual emergence* (tachi-araware ; Omori, 1981). Since the *sui generis* values of each ever-changing phenomenon are often too dynamic and subtle for the static intellect to recognize and grasp, it is needed to consult our capacity to *feel* rather than to *think, sub specie durationis* (Bergson, 1911/2007 b, p.106). Phenomenological perspectives and approaches have been highly valued not only in psychology (Giorgi, 2009) and cognitive science (Gallagher & Zahavi, 2012) but also in SLA in the form of qualitative studies (Mackey & Gass, 2016). Phenomenological validity, or the "correspondence between the subject's and the investigator's view of the research situation" (Bronfenbrenner, 1979, p.33) is also recognized as an important aspect of ecological validity.

9）The following is the original quote from Pascal's *Pensées* by James : "*Le coeur a ses raisons que la raison ne connaît point*" (Pascal, 1670/1976, Fragment 277 ; James, 1896, p.341).

10）Beyond the level of individual mind, William James (1901-1902/1917) argues that "thought, with its remoteness and abstractness, has often enough in the history of philosophy been contrasted unfavorably with sensation. It is a commonplace of metaphysics that God's knowledge cannot be discursive but must be intuitive, that is, must be constructed more after the pattern of what in ourselves is called immediate feeling, than after that of proposition and judgment" (p.405). In other words, emotion has already been regarded as even superior to cognition in the world of academia, especially in relation to theology.

Alfred North Whitehead, the distinguished mathematician and the founder of the *process philosophy,* refined and extended James' theory of emotion by positing that primitive physical experience *is* emotional feeling (Whitehead, 1933/1967, p.176) and by substantiating how such higher-level cognitions as knowledge, understanding, and Reason are not only influenced by emotion but also composed of emotional building blocks (Whitehead, 1929/1978).[11] In Whitehead's cosmology, emotions "form a vital link between bodily feelings at the root of all experience and the higher levels of understanding of which human beings, in particular, are capable" (Flynn, 1995, p.377 ; Figure 2). Whiteheadian *process philosophy* was extended not only to educational psychology (Whitehead, 1929) but also to the latest post-cognitive metapsychology (Brown, 2017), showing that Whiteheadian organic view of human nature is a huge legacy applicable to the modern theories and practices of psychology and education, especially in the rising Ecozoic Era that the human beings are facing at the global scale (Fang, 2011).[12]

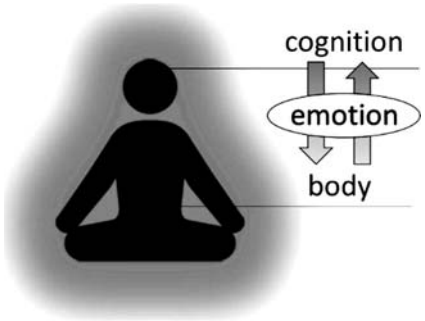

Figure 2 The organic view of emotion is depicted, in which emotion works as the vital link between the cognition-body continuum. Although not depicted, emotion does not only bridge cognition and body but also surrounds cognition, serving as ingredients of cognition.

4. Integrated views : Peirce's abduction

Charles Sanders Peirce, one of the greatest figures in philosophy, mathematics, and logics, who is also the founding father of such flourishing academic disciplines as *pragmati(ci)sm* and *sem(e)iotics,* metaphorically notes that feelings "form the warp and woof of cognition" (1887-1888/1931 a, para. 1.381) and behind the process, an emotion "produces large movements in the body, and . . . strongly affects the current of thought" (1868/1934 a, para. 5.293). Peirce further recognizes the self-organizing power of deep emotional springs of life, which is superior to the superficial cognition (1898/1931 d, para. 1.673). "General ideas are living feelings spread out" (Peirce, 1892/1934 b, para. 6.143). The prodigy's works have tremendous influence on multidisciplinary fields, even extending to language learning and SLA (van Lier, 2004).[13] One of his brilliant logical inventions is *abductive*

11) A. N. Whitehead (1929/1978) proposes that emotion has an active and immanent order even in the absence of intellectual cognition and disproved Aristotelian hylomorphism. His view is compatible with recent discussions regarding chaos theory, dynamic systems theory (DSTs), self-organization, emergence, and affordance (cf. Shaviro, 2009).

12) The Ecozoic Era has originally been proposed by an ecotheologian Thomas Berry to depict the unprecedented era that the human beings are experiencing. It is closely related with ecological, biological, and environmental awareness and paradigm. According to Greene (2011), the Ecozoic Era is "the promise that there will be a favorable outcome of the current situation, that there will be a long period of mutually enhancing relations between humans and nature, which must necessarily be accompanied by a period of better, more mutually enhancing relations among humans" (p.9).

13) For example, an educational linguist Leo van Lier, whose large contribution to SLA studies including introduction of "ecological approach" is highly valued (Kramsch & Zhang, 2017), emphasizes the honorificabilitudinity of Peircean works as follows : "Peirce is the giant among giants of semioticians. His work influenced that of most 20th century ↗

reasoning (also known as *abduction, retroduction,* or *hypothetic inference* ; Peirce, 1898/1992), which is the third kind of logical reasoning (the first and second of them being Aristotelian *deduction* and Baconian *induction*). Peircean abduction, which is the only creative logical operation to introduce newness, is still a highly valued concept in contemporary academia not only in sem(e)iotics (Guagnano, 2017) but also in studies of discovery process (Magnani, 2001), heuristics (McGrew, 2003), artificial intelligence (Aliseda, 2000), qualitative case studies (Thomas, 2010), serendipity in anthropological research and scientific inquiry (Hazan & Hertzog, 2016 ; Copeland, in press), architectural design process (Yamaguchi & Monnai, 2013), judicial proof (van Andel & Bourcier, 2002), and even teaching creativity to students to foster learning (Beghetto & Schreiber, 2017 ; Tanggaard & Hjorth, 2017).[14] According to Peirce, the abductive reasoning is essentially successfully perceived subtle micro emotions (Peirce, 1878/1931 b).[15] The active power of emotion as the fundamental initiating effect of sign (viz., firstness) is also woven into his sem(e)iosis as the *emotional interpretants* (Peirce, 1907/1998).

5. Integrated views : Dewey's emotional *tentacles* and the metaphor of driving in the darkness

Inspired by both James and Peirce, John Dewey, a pragmatist and an influential educational reformer, further discusses how prodigious emotion could be when trained and harnessed optimally. According to him, "emotion is the moving and cementing force. It selects what is congruous and dyes what is selected with its color, thereby giving qualitative unity to materials externally disparate and dissimilar. It thus provides unity in and through the varied parts of an experience" (Dewey, 1934/1980, p.44). Contrary to the prevalent view to pursue the pure intelligence given *a priori* from the transcendental realm detached from worldly experiences (Dewey, 1919/1920) and the tradition to see emotions as a bunch of wayward forces toward psychological entropy, he notes that "intelligence cannot be separated from direct sensitivity" (Dewey, 1934/1980, p.47) and posits that "an emotion is more effective than any deliberate challenging sentinel could be. It reaches out *tentacles* for that which is cognate, for things which feed it and carry it to completion" (ibid., p.70 ; italicization by the author). He further states that "not only is this [i.e., emotional] quality a significant motive in undertaking intellectual inquiry and in keeping it honest, but that no intellectual activity is an integral event (is an experience), unless it is rounded out with this [i.e., emotional] quality. Without it, thinking is inconclusive" (ibid., p.38). Emotional appreciation of the un-intellectualized "is won only by those willing to think" (Dewey, 1922, p.263). Reciprocally, the reason "depends upon a sensitive and proportionate emotional sensitiveness" (ibid., p.198). Dewey's notion of emotional sensitiveness is not to be understood as a kind of neurotic disorder.[16] On the contrary, it concerns the

↘ semioticians, including Morris, Mead, Eco, Jakobson and Sebeok . . . It also has much affinity with the dialogical work of Bakhtin . . . Peirce's semiotics . . . is squarely placed in the rough and tumble of the physical and the social world, and is highly dynamic. We might say it is the quantum physics version of semiotics. There are more dimensions in it than we can bend our brain around" (van Lier, 2004, p.77).

14) The importance of abduction had already been alluded in Kanazawa (2016, p.43).

15) In Peirce's own words, "when our nervous system is excited in a complicated way, there being a relation between the elements of the excitation, the result is a single harmonious disturbance which I call an emotion. . . . This emotion is essentially the same thing as a hypothetic inference, and every hypothetic inference involves the formation of such an emotion" (Peirce, 1878/1931 b, para. 2.643).

16) William James (1901-1902/1917) makes an intriguing argument that emotional susceptibility in a psychopathic ↗

active, self-organizing, subtle, and pervasive emotions. Then, how can this microscopic creative emotion be understood? From a phenomenological approach, its vivid metaphorical first-person narrative is provided by Taniguchi (1986). The following is the narrative modified by the author :

> *At night, I am driving in the wilderness. The visible is where the headlight of the car illuminates, which is the scope of cognition and intellectual deliberation. I know that the illuminated portion is merely the little part of the whole, which is surrounded by the pervasive darkness, the vast penumbra of vague and unfigured things, the major constituent of the situation as a qualitative whole. Although I can shed the light of consciousness on different objects by changing the direction of light, then, in turn, those which ceased to be illuminated will be absorbed into the shadowy background. I cannot shed the light of intellectual consciousness to make the immediate presence of a total qualitative situation explicit as a whole. However, that does not mean that the pervasive quality is beyond the axis of my conduct. The surrounding shadowy background corresponds to the background of feeling and diffused emotion, which can be sensed or felt. Through this emotional sensitiveness, I can ingest and apperceive the situation as a whole. I will reach my destination through the darkness, not solely due to the light of intellect but largely owing to the emotional sensitivity, which illuminates without light.* (based on Taniguchi, 1986, pp.197-198 ; translated, modified and partially reorganized by the author in reference to Dewey, 1922, p.182, p.262 and Dewey, 1939, pp.68-70 ; Figure 3)

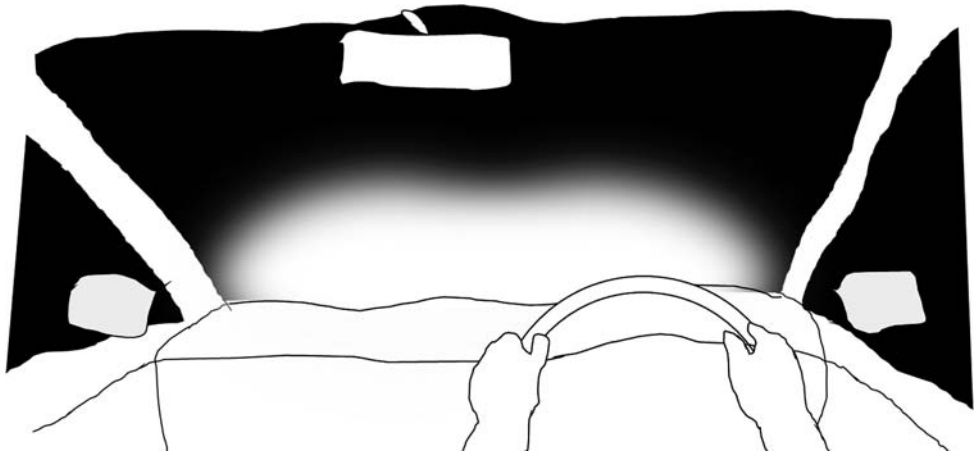

Figure 3 Dewey's first-person metaphor of human conduct as a driver in the darkness is depicted.[17] **The figure was drawn by the author.**

In Dewey's metaphorical story, although the shadowy background is beyond the scope of the headlight of intellect, it can be felt and manipulated peripherally by exercising emotional sensitivity actively, which reaches out *tentacles* for the invisible objects and subconsciously apperceives the

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↘ sense, when accompanied by superior intellect, coalesces into "the best possible condition for the kind of effective genius that gets into the biographical dictionaries" (pp.24-25). In positive psychology, Kaufman and Gregoire (2016) attribute creative cognitive style that characterizes a genius partly to emotional sensitivity.

17) If the reader of this paper is an urban resident, the original example of *driving in the wilderness at night* may seem unfamiliar and unrealistic. If such was the case, it may well be interpreted instead as *walking in the darkness with a torch.*

situation as a whole.[18)]

6. Envoi : Bergson's creative evolution/emotion

Such a procataleptic capacity of emotion echoes with the profound insights of Nobel laureate philosopher Henri Bergson, whose deep insights ahead of his time have recently been rediscovered and increasingly reappraised (e.g., During & Miquel, 2016).[19)] He defines emotion as the "part or aspect of the inside of our body which we mix with the image of external bodies" (Bergson, 1896/1911 a, p.59) and further argues that the affective state "correspond not merely to the physical disturbances, movements or phenomena which have taken place, but also, and especially, to those which are in preparation, those which are getting ready to be" (Bergson, 1889/1910, p.34).[20)] Emotional feeling is what constitutes the phenomenological aspect of intuition, which will "enable us to grasp what it is that intelligence fails to give us, and indicate the means of supplementing it" (Bergson, 1907/1911 b).

These timeless philosophical insights cited and incorporated in this paper are still valuable, or becoming even more valuable, in the 21st century with growing awareness of global ecology and dynamic complex organic systems. They are expected to pave the way for better understanding and theories of human nature, development, and education. The epistemological turn, when accomplished, will shed new light on various problems of modern world, indirectly leading to solving them in the long term. To conclude this paper, Bergson's famous line from *Creative evolution* is cited as an envoi. It eloquently describes the organic vision which are shared by the recondite philosophers reviewed above. Note that the words, *intelligence* and *instinct* can reasonably be interpreted to correspond to *cognition* and *emotion,* respectively :

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18) Such an active emotional apperception, whose existence is psychologically proven (e.g., Schwarz, 2002), may have an earlier origin both in phylogenetical and ontogenetical senses of the term. For phylogenesis, based on abundant cross-species affective neuroscience data, Panksepp (2015) demonstrates that biological primal survival mechanisms with raw emotional experiential feelings, whose phenomenological qualities are the states of positive and negative valence, are based more on organismic action coordinates that actively sample the environment than pure passive sensory-experiences (p.228). For ontogenesis, studies on Theories of Mind have reported that infants during their first year of life, despite being too young to neither comprehend nor produce language, *do* have an active mental capacity of cognition based on an innate sense of sympathetic emotional attunement, which later develops into a Theory of Mind (Legerstee, 2005). Such a primordial cognition may well be called *emotional intellect* (Oyabu, 2014). Although such an early emotional intellect in its pure form ceases to dominate consciousness after adulthood, there is an exceptional case reported in brain pathology. Dyslexic patients with severe cerebral lesion may have severe problems of recall, but simultaneously, emotion can suddenly bring back the recollection which seems to have been lost forever (Bergson, 1919/1920, p.65). Evidences on aphasia suggest that linguistic deficit caused by brain damage could result in positivity bias. Goldfarb (1986) reported that institutionalized aphasic adults, despite the high incidence of depression, expressed spontaneous linguistic acts that supported the Pollyanna hypothesis, in which the positively-biased use of positive words compared to negative words were postulated (Boucher & Osgood, 1969).

19) Bergsonian metaphysics is a scientific theory echoing with Jamesian psychology and the latest neuroanatomical findings at his time (cf. Bergson, 1903-1936/2011). Bergson is also famous for his fierce debate with Albert Einstein concerning the nature of time. Bergson's criticism on Einstein's theory of relativity and the interpretation of time was influential enough for the Nobel Prize committee to award Einstein with the discovery of the law of the photoelectric effect instead of the theory of relativity (Canales, 2015). Clairvoyantly enough ; Einstein's theory is no longer regarded as almighty after the rise of quantum physics.

20) An excellent analysis on Bergsonian view of emotion (*creative emotion*) is provided by a renowned post-structuralist philosopher Gilles Deleuze (1966/1991, pp.106-113).

There are things that intelligence alone is able to seek, but which, by itself, it will never find. These things instinct alone could find ; but it will never seek them (Bergson, 1907/1911 b, p.151).[21)]

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21) There surely have been numerous attempts to cultivate the potential power to integrate the shallow analytic reason and the deep holistic emotional feelings actively and consciously. Some of their predecessors can be found on esoteric religious practices in both East (e.g., Suzuki, 1935 for *Mindfulness*) and West (e.g., Loyola, 1522-1524/1914 for *Flow* Experience). When such an integration is consummated, the attained state has been expressed with such words as *Wisdom* (Whitehead, 1933/1967 ; Russell, 1938/2009 ; Jaspers, 1950/1954), *Moi Profond* (Bergson, 1889/1910), and *Zen* (Dōgen, 1231-1253/2007). For instance, although it is less famous than his logical-mathematical achievements, the renowned Nobel laureate philosopher Bertrand Russell incisively argues that "wisdom is not merely intellectual : intellect may guide and direct, but does not generate the force that leads to action. *The force must be derived from the emotions*" (Russell, 1938/2009, p.661 ; italicization by the author).

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